

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

|                                                                 |
|-----------------------------------------------------------------|
| Date of mailing (day/month/year)<br>28 November 2000 (28.11.00) |
| Applicant's or agent's file reference<br>P02837PCT              |
| International application No.<br>PCT/GB00/01233                 |

From the INTERNATIONAL BUREAU

To:

SHAW, Laurence  
Laurence Shaw & Associates  
5th floor  
Metropolitan House  
1 Hagley Road, Edgaston  
Birmingham B16 8TG  
ROYAUME-UNI

## IMPORTANT NOTIFICATION

International filing date (day/month/year)  
30 March 2000 (30.03.00)

|                                                                                                                                                                                                                     |                      |                                                                                                                                                                   |                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--|
| 1. The following indications appeared on record concerning:                                                                                                                                                         |                      |                                                                                                                                                                   |                    |  |
| <input checked="" type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative                                       |                      |                                                                                                                                                                   |                    |  |
| Name and Address<br>HENDERSON MORLEY LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom                                                                                      | State of Nationality |                                                                                                                                                                   | State of Residence |  |
|                                                                                                                                                                                                                     | GB                   |                                                                                                                                                                   | GB                 |  |
|                                                                                                                                                                                                                     | Telephone No.        |                                                                                                                                                                   |                    |  |
|                                                                                                                                                                                                                     | Facsimile No.        |                                                                                                                                                                   |                    |  |
| Name and Address<br>HENDERSON MORLEY RESEARCH AND<br>DEVELOPMENT LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom                                                          | State of Nationality |                                                                                                                                                                   | State of Residence |  |
|                                                                                                                                                                                                                     | GB                   |                                                                                                                                                                   | GB                 |  |
|                                                                                                                                                                                                                     | Telephone No.        |                                                                                                                                                                   |                    |  |
|                                                                                                                                                                                                                     | Facsimile No.        |                                                                                                                                                                   |                    |  |
| 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:                                                                                                   |                      |                                                                                                                                                                   |                    |  |
| <input type="checkbox"/> the person <input checked="" type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence               |                      |                                                                                                                                                                   |                    |  |
| Name and Address<br>HENDERSON MORLEY RESEARCH AND<br>DEVELOPMENT LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom                                                          | State of Nationality |                                                                                                                                                                   | State of Residence |  |
|                                                                                                                                                                                                                     | GB                   |                                                                                                                                                                   | GB                 |  |
|                                                                                                                                                                                                                     | Telephone No.        |                                                                                                                                                                   |                    |  |
|                                                                                                                                                                                                                     | Facsimile No.        |                                                                                                                                                                   |                    |  |
| 3. Further observations, if necessary:                                                                                                                                                                              |                      |                                                                                                                                                                   |                    |  |
| 4. A copy of this notification has been sent to:                                                                                                                                                                    |                      |                                                                                                                                                                   |                    |  |
| <input checked="" type="checkbox"/> the receiving Office<br><input type="checkbox"/> the International Searching Authority<br><input checked="" type="checkbox"/> the International Preliminary Examining Authority |                      | <input type="checkbox"/> the designated Offices concerned<br><input checked="" type="checkbox"/> the elected Offices concerned<br><input type="checkbox"/> other: |                    |  |
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland<br>Facsimile No.: (41-22) 740.14.35                                                                                   |                      | Authorized officer<br>Christine Carrié<br>Telephone No.: (41-22) 338.83.38                                                                                        |                    |  |

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## PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION  
(PCT Rule 61.2)

|                                  |
|----------------------------------|
| Date of mailing (day/month/year) |
| 17 November 2000 (17.11.00)      |

|                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To:                                                                                                                                                                                                                            |
| Commissioner<br>US Department of Commerce<br>United States Patent and Trademark<br>Office, PCT<br>2011 South Clark Place Room<br>CP2/5C24<br>Arlington, VA 22202<br>ETATS-UNIS D'AMERIQUE<br>in its capacity as elected Office |

|                                            |                                       |
|--------------------------------------------|---------------------------------------|
| International application No.              | Applicant's or agent's file reference |
| PCT/GB00/01233                             | P02837PCT                             |
| International filing date (day/month/year) | Priority date (day/month/year)        |
| 30 March 2000 (30.03.00)                   | 01 April 1999 (01.04.99)              |

|                     |
|---------------------|
| Applicant           |
| PARDOE, Ian, Stuart |

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

25 October 2000 (25.10.00)

in a notice effecting later election filed with the International Bureau on:

2. The election  was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

|                                                                                               |                                              |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland | Authorized officer<br><br>Zakaria EL KHODARY |
| Facsimile No.: (41-22) 740.14.35                                                              | Telephone No.: (41-22) 338.83.38             |

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## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

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| Date of mailing (day/month/year)<br>28 November 2000 (28.11.00) |
| Applicant's or agent's file reference<br>P02837PCT              |
| International application No.<br>PCT/GB00/01233                 |

From the INTERNATIONAL BUREAU

To:

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1 Hagley Road, Edgaston  
Birmingham B16 8TG  
ROYAUME-UNI

## IMPORTANT NOTIFICATION

International filing date (day/month/year)  
30 March 2000 (30.03.00)

## 1. The following indications appeared on record concerning:

the applicant  the inventor  the agent  the common representative

|                                                                                                                                |                            |                          |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------|
| Name and Address<br>HENDERSON MORLEY LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom | State of Nationality<br>GB | State of Residence<br>GB |
| Telephone No.                                                                                                                  |                            |                          |
| Facsimile No.                                                                                                                  |                            |                          |
| Teleprinter No.                                                                                                                |                            |                          |

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

the person  the name  the address  the nationality  the residence

|                                                                                                                                                            |                            |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------|
| Name and Address<br>HENDERSON MORLEY RESEARCH AND<br>DEVELOPMENT LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom | State of Nationality<br>GB | State of Residence<br>GB |
| Telephone No.                                                                                                                                              |                            |                          |
| Facsimile No.                                                                                                                                              |                            |                          |
| Teleprinter No.                                                                                                                                            |                            |                          |

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

|                                                                                       |                                                                   |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <input checked="" type="checkbox"/> the receiving Office                              | <input type="checkbox"/> the designated Offices concerned         |
| <input type="checkbox"/> the International Searching Authority                        | <input checked="" type="checkbox"/> the elected Offices concerned |
| <input checked="" type="checkbox"/> the International Preliminary Examining Authority | <input type="checkbox"/> other:                                   |

|                                                                                                                                       |                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland<br><br>Facsimile No.: (41-22) 740.14.35 | Authorized officer<br>Christine Carrié<br><br>Telephone No.: (41-22) 338.83.38 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|

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## PATENT COOPERATION TREATY

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NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
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| <input checked="" type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative                                       |  |                                                                                                                                                                   |  |                          |
| Name and Address<br>HENDERSON MORLEY LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom                                                                                      |  | State of Nationality<br>GB                                                                                                                                        |  | State of Residence<br>GB |
|                                                                                                                                                                                                                     |  |                                                                                                                                                                   |  | Telephone No.            |
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|                                                                                                                                                                                                                     |  |                                                                                                                                                                   |  | Teleprinter No.          |
| 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:                                                                                                   |  |                                                                                                                                                                   |  |                          |
| <input type="checkbox"/> the person <input checked="" type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence               |  |                                                                                                                                                                   |  |                          |
| Name and Address<br>HENDERSON MORLEY RESEARCH AND<br>DEVELOPMENT LIMITED<br>Metropolitan House<br>2 Salisbury Road<br>Birmingham B13 8JS<br>United Kingdom                                                          |  | State of Nationality<br>GB                                                                                                                                        |  | State of Residence<br>GB |
|                                                                                                                                                                                                                     |  |                                                                                                                                                                   |  | Telephone No.            |
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|                                                                                                                                                                                                                     |  |                                                                                                                                                                   |  | Teleprinter No.          |
| 3. Further observations, if necessary:                                                                                                                                                                              |  |                                                                                                                                                                   |  |                          |
| 4. A copy of this notification has been sent to:                                                                                                                                                                    |  |                                                                                                                                                                   |  |                          |
| <input checked="" type="checkbox"/> the receiving Office<br><input type="checkbox"/> the International Searching Authority<br><input checked="" type="checkbox"/> the International Preliminary Examining Authority |  | <input type="checkbox"/> the designated Offices concerned<br><input checked="" type="checkbox"/> the elected Offices concerned<br><input type="checkbox"/> other: |  |                          |

|                                                                                                                                       |                                                                                    |
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| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland<br><br>Facsimile No.: (41-22) 740.14.35 | Authorized officer<br><br>Christine Carrié<br><br>Telephone No.: (41-22) 338.83.38 |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|

10/049401

JC18 Rec'd PCT/PTO 12 FEB 2002  
K

LS/VMS/PO2837PCT

February 22, 2001

The European Patent Office  
Erhardtstrasse 27  
D-80298 – Munich  
GERMANY

**CHAPTER II PROCEEDINGS**

Dear Sirs

International Patent Application PCT/GB 00/01233  
**HENDERSON MORLEY**  
Our Ref: PO2837PCT

We now lodge the following in reply to the Written Opinion:

- a new set of Claims
- substitute pages of description having new statements of invention.

Original Claims 1, 2 and 8 have been cancelled. The Claims for extracting the active ingredient from plant material have been refashioned; there is no teaching in the art to take these steps to extract an active ingredient from this source. Original Claims 13 and 14 have been cancelled. The right to restore original Claims 1, 2, 8, 13 and 14 at the national phases is reserved.

Please date-stamp and return the enclosed copy of this letter to acknowledge safe receipt.

Yours faithfully

LAURENCE SHAW

Encs

ENCLOSURE "A"

CLAIMS

1. Use of water-soluble extract of *Palmaria palmata* for the production of a pharmaceutical composition effective against viruses.
2. Use according to Claim 1, wherein the composition is adapted for administration orally, intravenously, or topically.
3. Use according to Claim 2, adapted for ingestion orally.
4. Use according to Claim 2 or 3, comprising a 200 mg. capsule, to be ingested three times daily.
5. Use according to any preceding Claim, adapted for administration in the treatment of viruses of the Herpes family.
6. A method of recovering the water-soluble extract of *Palmaria palmata* for use in the production of a pharmaceutical composition effective against viruses, the method comprising drying the *Palmaria palmata* to a predetermined water content, comminuting the material to a fine powder and then dissolving the powder in water.

7. A method according to Claim 6, including the step of storing the powder at or below room temperature.
8. A method according to Claim 6 or 7, including the step of centrifuging the solution and recovering the supernatant.
9. A method according to Claim 6, 7 or 8, wherein the dried material is mixed with water in the ratio of 50g:300ml.

## CLAIMS

1. Use of water-soluble extract of *Palmaria palmata* for the production of a pharmaceutical composition effective against viruses.
2. Use according to Claim 1, wherein the composition is adapted for administration orally, intravenously, or topically.
3. Use according to Claim 2, adapted for ingestion orally.
4. Use according to Claim 2 or 3, comprising a 200 mg. capsule, to be ingested three times daily.
5. Use according to any preceding Claim, adapted for administration in the treatment of viruses of the Herpes family.
6. A method of recovering the water-soluble extract of *Palmaria palmata* for use in the production of a pharmaceutical composition effective against viruses, the method comprising drying the *Palmaria palmata* to a predetermined water content, comminuting the material to a fine powder and then dissolving the powder in water.

7. A method according to Claim 6, including the step of storing the powder at or below room temperature.
8. A method according to Claim 6 or 7, including the step of centrifuging the solution and recovering the supernatant.
9. A method according to Claim 6, 7 or 8, wherein the dried material is mixed with water in the ratio of 50g:300ml.

LS/MS/06.02.2001.  
P02837PCT.A. Cls.3



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| (51) International Patent Classification 7 :<br><br>A61K 35/80, A23L 1/337, A61P 31/12,<br>31/22                                                                                   |  | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | (11) International Publication Number: <b>WO 00/59524</b><br><br>(43) International Publication Date: 12 October 2000 (12.10.00) |
| (21) International Application Number: PCT/GB00/01233<br><br>(22) International Filing Date: 30 March 2000 (30.03.00)                                                              |  | (81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). |                                                                                                                                  |
| (30) Priority Data:<br>9907596.2 1 April 1999 (01.04.99) GB                                                                                                                        |  | Published<br><i>With international search report.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                  |
| (71) Applicant (for all designated States except US): HENDERSON MORLEY LIMITED [GB/GB]; Metropolitan House, 2 Salisbury Road, Birmingham B13 8JS (GB).                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                  |
| (72) Inventor; and<br>(75) Inventor/Applicant (for US only): PARDOE, Ian, Stuart [GB/GB]; Henderson Morley Limited, Metropolitan House, 2 Salisbury Road, Birmingham B13 8JS (GB). |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                  |
| (74) Agent: SHAW, Laurence; Laurence Shaw & Associates, 5th floor, Metropolitan House, 1 Hagley Road, Edgaston, Birmingham B16 8TG (GB).                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                  |
| (54) Title: ANTIVIRAL COMPOSITION                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                  |
| (57) Abstract<br><br>An antiviral composition containing a water soluble extract of <i>Palmaria palmata</i> .                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                  |

**FOR THE PURPOSES OF INFORMATION ONLY**

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## PATENT COOPERATION TREATY

PCT



## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Applicant's or agent's file reference<br>P02837PCT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>FOR FURTHER ACTION</b>                                | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
| International application No.<br>PCT/GB00/01233                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | International filing date (day/month/year)<br>30/03/2000 | Priority date (day/month/year)<br>01/04/1999                                                        |
| International Patent Classification (IPC) or national classification and IPC<br>A61K35/80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          |                                                                                                     |
| <p>IB</p> <p>Applicant<br/>HENDERSON MORLEY LIMITED <i>et al</i> Research and Development Limited</p> <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 6 sheets.</p> <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input checked="" type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul> |                                                          |                                                                                                     |

|                                                                                                                                                                                                                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Date of submission of the demand<br>25/10/2000                                                                                                                                                                                                                                         | Date of completion of this report<br>12.06.2001                   |
| Name and mailing address of the international preliminary examining authority:<br><br>European Patent Office<br>D-80298 Munich<br>Tel. +49 89 2399 - 0 Tx: 523656 epmu d<br>Fax: +49 89 2399 - 4465 | Authorized officer<br>Winger, R<br>Telephone No. +49 89 2399 8129 |



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/01233

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

4-13 as originally filed

1-3,3a as received on 28/02/2001 with letter of 22/02/2001

**Claims, No.:**

1-9 as received on 28/02/2001 with letter of 22/02/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/01233

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

|                     |      |        |     |
|---------------------|------|--------|-----|
| Novelty (N)         | Yes: | Claims | 1-9 |
|                     | No:  | Claims |     |
| Inventive step (IS) | Yes: | Claims | 1-5 |
|                     | No:  | Claims | 6-9 |

2. Citations and explanations  
see separate sheet

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
see separate sheet

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/01233

**Re Section V: Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. **Prior Art:** Reference is made to the following document cited in the International Search Report

D1 (WO 91 07946 A) discloses extracts of algae for the preparation of compositions with anti-radical activity (claim 1). On page 4 an extract of *Palmaria palmata* using 180 ml water and 20 ml isopropanol is prepared.

2. **Novelty (Article 33(2) PCT):**

2.1 Claim 1 relates to the use of water-soluble extracts of *Palmaria palmata* for the production of a pharmaceutical composition effective against viruses. As document D1 does not disclose such a use, the subject-matter of claim 1 and dependent claims 2-5 seems to be novel.

2.2 Claim 6 relates to a method of recovering the water-soluble extract of *Palmaria palmata*. As document D1 does not disclose the same process, the subject-matter of claim 6 and dependent claims 7-9 seems to be novel.

3. **Inventive Step (Article 33(3) PCT):**

3.1 Claim 1 relates to the use of water-soluble extracts of *Palmaria palmata* for the production of a pharmaceutical composition effective against viruses. As there is no indication in the prior art of an anti-viral activity of *Palmaria palmata* extracts, the subject-matter of claims 1-5 seems to be inventive.

3.2 Claim 6 relates to a method of recovering the water-soluble extract of *Palmaria palmata*. Although the prior art does not disclose the same process, the individual steps set out in claims 6-9 are well known and the skilled person would regard it a normal design procedure to combine all these features. The indication of the intended use of the extract is not considered capable of characterizing the method as such. Thus, the subject-matter of claims 6-9 does not seem to involve an inventive step.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB00/01233

**4. Industrial Applicability (Article 33(4) PCT):**

The subject-matter of claims 1-9 concerns products and processes which are industrially applicable under Article 33(4) PCT.

**Re Section VII: Certain defects in the international application**

**5. The conclusion of example III (p 13) seems to be unclear.**

PO2837PCT

ANTIVIRAL COMPOSITION

The invention relates to an anti-viral composition useful in the therapeutic or prophylactic treatment of a range of viral conditions. More particularly the invention is useful in the treatment of Herpes viral infections.

It has been suggested that certain marine algal species have anti-viral activity, for example, Ehresmann, 1977, J Phycol. 13:37-40. However, the species so far identified as having anti-viral action are both rare in their occurrence and difficult to harvest as well as being impossible to grow in culture. This has limited their usefulness.

The invention is based on the realisation that extracts of *Palmaria palmata* are useful for the purpose specified. *Palmaria palmata* is different in that it is abundant, may be artificially cultured and therefore may be used more easily to mass produce an anti-viral material.

In one aspect the invention provides use of water-soluble extract of *Palmaria palmata* for the production of a pharmaceutical composition effective against viruses.

In one specific aspect the invention provides a water soluble extract of *Palmaria palmata* for use as an anti-viral agent, especially against viruses of the Herpes family.

The composition may be formulated for application in any suitable way, e.g. as a capsule, a tablet, suppository, injectable solution, topical cream; or the like. In addition the extract may be used as an additive for a foodstuff, in a face mask; or the like.

For oral application there is provided a 200 mg. capsule, to be ingested three times daily.

In yet another aspect the invention provides a method of treating herpes virus infections in human or animal subjects, comprising applying to the subject a water soluble extract of *Palmaria palmata*. Preferably the application is ingestion.

The rate of application may be determined by routine experimentation. One preferred embodiment is a 200 mg capsule, to be ingested three times per day.

In yet another aspect the invention provides a method of recovering the water-soluble extract of *Palmaria palmata* for use in the production of a pharmaceutical composition effective against viruses, the method comprising drying the *Palmaria palmata* to a predetermined water content, comminuting the material to a fine powder and then dissolving the powder in water.

The method preferably includes the step of storing the powder at or below room temperature. Preferably the method includes the step of centrifuging the solution and recovering the supernatant. Preferably the dried material is mixed with water in the ratio of 50g:300ml.

The full botanical name of *Palmaria palmata* is *Algae Rhodophycota Rhodophyceae* *Palmariales Palmariaceae*. Common names include Dulsk, Dillisk, Soel, Darusu, Goemon. A review of the chemical constituents of the red alga *Palmaria palmata* is published in *Economic Botany* 34(1), 1980, pp 27-50. This discloses at page 36 that the major polysaccharide is a water-soluble xylan composed of  $\beta$  - (1  $\rightarrow$  3) and  $\beta$  - (1  $\rightarrow$  4) linked D-xylose units which contain no sulphate ester or methoxyl groups.

The water soluble extracts of *Palmaria palmata* are extremely effective for the treatment of viruses of the Herpes family including Herpes simplex type 1, Herpes simplex type 2, varicella zoster cytomegalovirus, human Herpes type 6 and human Herpes type 8. The anti-viral activity of these water soluble extracts may also be effective against other viruses.

Biochemical analyses of *Palmaria palmata* show that the major components are as follows:

**Protein:**

The classical Kjeldahl method support a high protein content of *Palmaria palmata*.

**Lipids:**

Lipids may be extracted using a solvent into which lipids dissolve, e.g. chloroform.

Minor components include vitamins and minerals including carotene, ascorbic acid, calcium, iron, and iodine.

3a

**Carb hydrates:**

The full botanical name of *Palmaria palmata* is *Algae Rhodophycota Rhodophyceae*  
*Palmariales Palmariaceae*. Common names include Dulsk, Dillisk, Soel, Darusu,

CLAIMS

1. Use of water-soluble extract of *Palmaria palmata* for the production of a pharmaceutical composition effective against viruses.
2. Use according to Claim 1, wherein the composition is adapted for administration orally, intravenously, or topically.
3. Use according to Claim 2, adapted for ingestion orally.
4. Use according to Claim 2 or 3, comprising a 200 mg. capsule, to be ingested three times daily.
5. Use according to any preceding Claim, adapted for administration in the treatment of viruses of the Herpes family.
6. A method of recovering the water-soluble extract of *Palmaria palmata* for use in the production of a pharmaceutical composition effective against viruses, the method comprising drying the *Palmaria palmata* to a predetermined water content, comminuting the material to a fine powder and then dissolving the powder in water.

7. A method according to Claim 6, including the step of storing the powder at or below room temperature.
8. A method according to Claim 6 or 7, including the step of centrifuging the solution and recovering the supernatant.
9. A method according to Claim 6, 7 or 8, wherein the dried material is mixed with water in the ratio of 50g:300ml.

LS/MS/06.02.2001.  
P02837PCT.A. Cls.3

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|                                                           |                                                                                                                                                         |                                                                |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Applicant's or agent's file reference<br><b>P02837PCT</b> | <b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. |                                                                |
| International application No.<br><b>PCT/GB 00/01233</b>   | International filing date (day/month/year)<br><b>30/03/2000</b>                                                                                         | (Earliest) Priority Date (day/month/year)<br><b>01/04/1999</b> |
| Applicant<br><b>HENDERSON MORLEY LIMITED et al.</b>       |                                                                                                                                                         |                                                                |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2.  Certain claims were found unsearchable (See Box I).

3.  Unity of Invention is lacking (see Box II).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.   

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

None of the figures.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claims 13-14 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

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Continuation of Box I.1

Claims Nos.: 13,14

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 00/01233

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

An antiviral composition containing a water soluble extract of *Palmaria palmata*

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/01233

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 7 A61K35/80 A23L1/337 A61P31/12 A61P31/22

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS, MEDLINE, PASCAL, LIFESCIENCES, CAB Data, EMBASE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|------------------------------------------------------------------------------------|-----------------------|
| A          | WO 91 07946 A (ENGRAIS COMPOSES MINERAUX ET A) 13 June 1991 (1991-06-13)<br>-----  |                       |

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

12 July 2000

Date of mailing of the international search report

19/07/2000

Name and mailing address of the ISA

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Authorized officer

Rempp, G

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/GB 00/01233

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date         |
|----------------------------------------|------------------|-------------------------|--------------------------|
| WO 9107946                             | A                | 13-06-1991              | FR 2655268 A 07-06-1991  |
|                                        |                  |                         | AT 103171 T 15-04-1994   |
|                                        |                  |                         | DE 69007626 D 28-04-1994 |
|                                        |                  |                         | DE 69007626 T 25-08-1994 |
|                                        |                  |                         | EP 0504236 A 23-09-1992  |
|                                        |                  |                         | ES 2054485 T 01-08-1994  |
|                                        |                  |                         | JP 5504583 T 15-07-1993  |
|                                        |                  |                         | US 5508033 A 16-04-1996  |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 00/01233

### Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: 13, 14  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
2.  Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

#### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.